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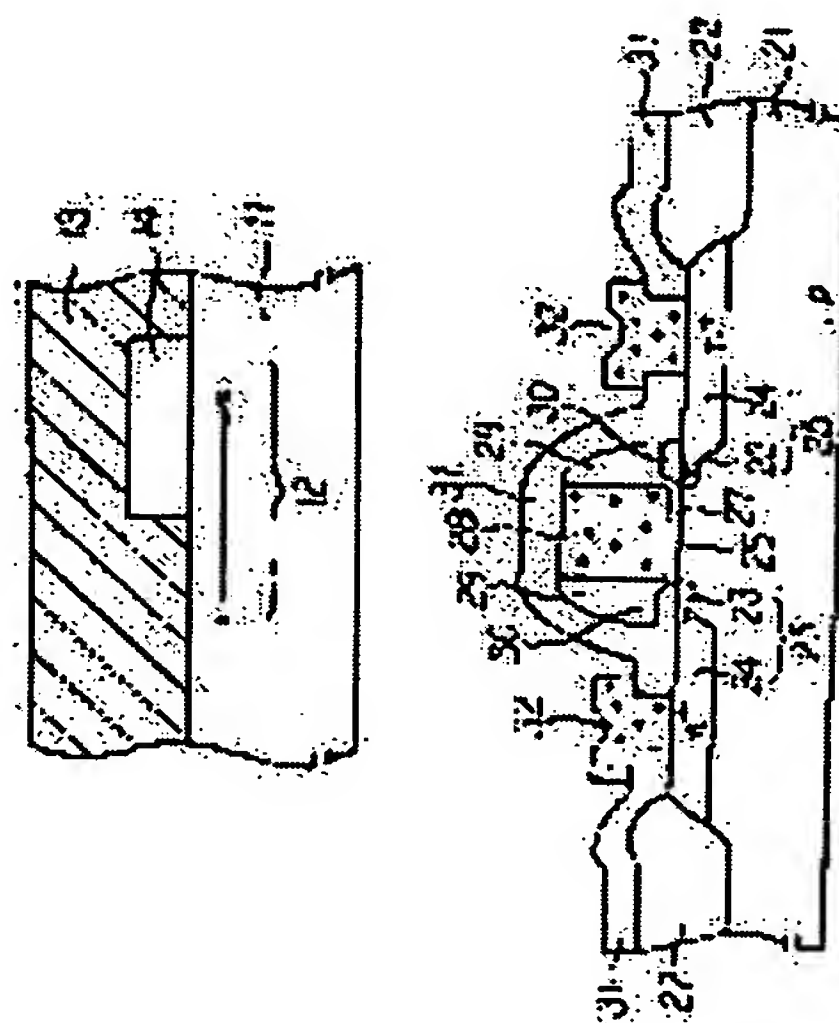
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(54) SEMICONDUCTOR DEVICE AND MANUFACTURE THEREOF

(57)Abstract:

PURPOSE: To obtain a semiconductor device capable of preventing the deterioration of the characteristics and reliability of an element due to hot carriers even in a region, in which a strong electric field, in which hot carriers are concentrated, is concentrated, by forming an insulating layer forming an air gap on the region, in which the strong electric field is concentrated, in a semiconductor substrate.

CONSTITUTION: A semiconductor substrate 11 and an insulating layer 13 being formed onto the semiconductor substrate 11 and shaping an air gap 14 on a region 12, into which the strong electric field of the semiconductor substrate 11 is concentrated, are formed, and injection into the insulating film 13 of hot carriers generated in the region 12, into which the strong electric field is concentrated, and the capture of hot carriers are prevented by the air gap 14. A semiconductor substrate 21, source region and drain region 25 formed to the surface of the semiconductor substrate 21, a gate electrode 28 shaped onto a channel region 26 held by the source region and drain region 25 through a gate insulating film 27, and insulating layers 29, 31 being formed onto said semiconductor substrate 21 and forming an air gap 30 on a region 23 brought into contact with the channel region 26 of the source region and drain region 25 are formed.



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